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# The Lancet Global Health

## Assessing the impact of the COVID-19 pandemic on maternal and perinatal health --Manuscript Draft--

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## Assessing the impact of the COVID-19 pandemic on maternal and perinatal health

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We commend Chmielewska and colleagues for undertaking a timely and comprehensive systematic review on a topic of pivotal global health importance.<sup>1</sup> The increase in maternal mortality and stillbirth during the COVID-19 pandemic, particularly in low-resource settings, is of considerable concern. Although a considerable number of studies were collated, many have substantial risk of bias. For example, of the 18 included studies assessing the link between the pandemic and preterm birth, only two had a quasi-experimental design, many lacked methodological detail, few adjusted for potential confounding, and only three included population-level data. Only one study accounted for time trends in preterm birth,<sup>2</sup> which is important to ensure that any changes during the pandemic are independent of underlying temporal patterns. Of the 18 studies, this study also had the largest sample size and the maximum Newcastle-Ottawa score, indicating high quality. As systematic reviews serve an important role in summarising the best available evidence, it is remarkable that the current meta-analysis excluded this study. Using inverse-variance rather than Mantel-Haenszel weighting allows for its inclusion,<sup>3</sup> with limited impact on the association between the COVID-19 pandemic and preterm birth (OR=0.90 [95%CI:0.83–0.98; 13 studies; n=1,919,726 (Figure)], rather than 0.91 [95%CI:0.84–0.99];<sup>1</sup> 12 studies; n=852,854).

Thorough assessment of how the COVID-19 pandemic and lockdowns have affected maternal and perinatal outcomes is crucial and has important public health implications. Accordingly, more robust studies are needed based on high-quality longitudinal data. Ideally population-level data should be used, as the pandemic likely influenced health seeking behaviors and access to maternity care, leading to potential ascertainment bias if institutional-level data is relied on.<sup>4</sup> Also, inclusion of both pregnancy and neonatal data (rather than just one or the other) is important to assess any disparate impact of the pandemic on competing events (e.g. stillbirth and preterm birth). Applying appropriate quasi-experimental designs to population-level maternity and birth data, accounting for underlying temporal

trends in the outcomes of interest, has the highest potential to attribute causality and minimise confounding.

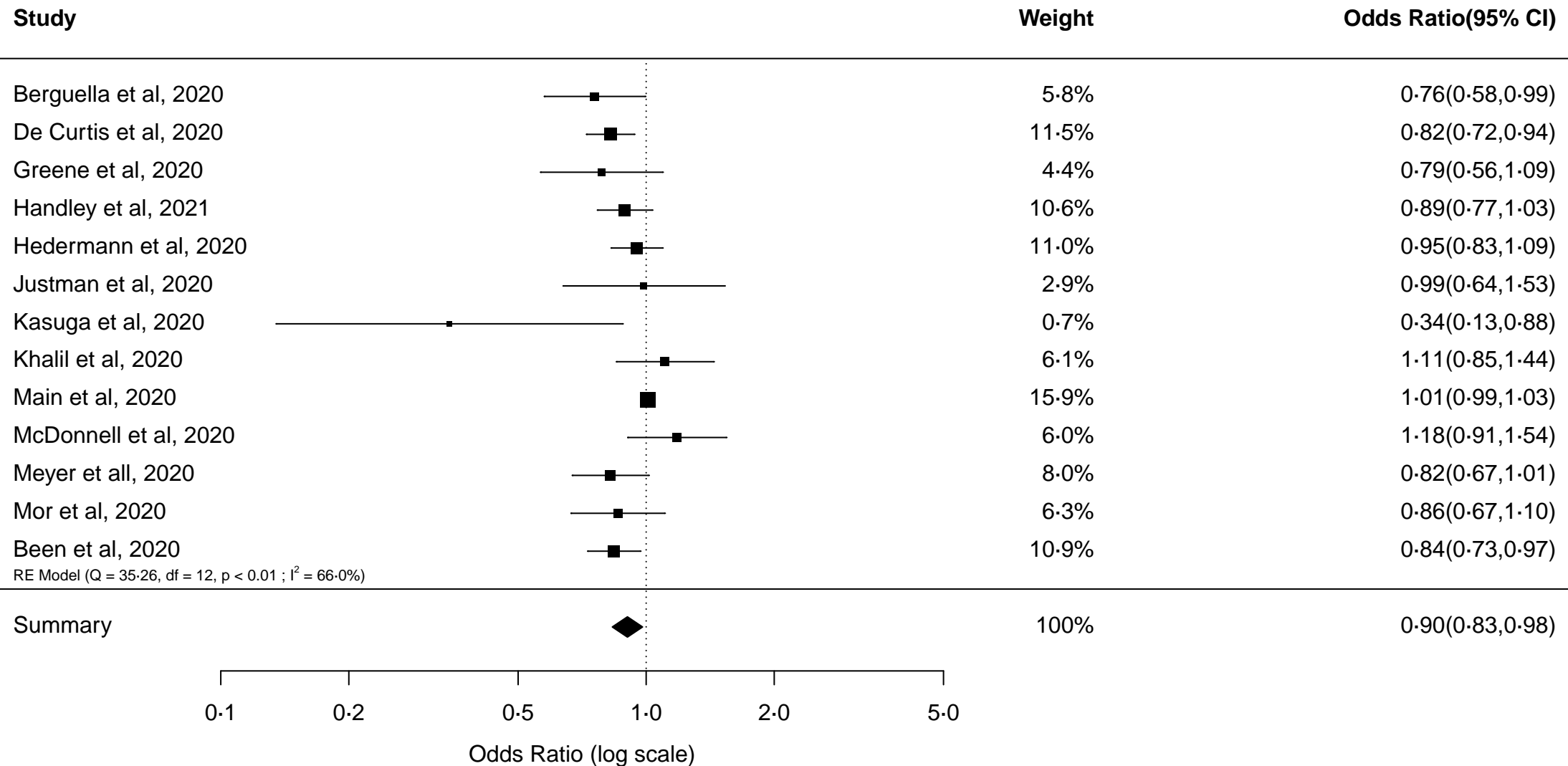
Now is the time as a perinatal research community to seize opportunities to collaboratively take advantage of the unique natural experiment provided by the COVID-19 pandemic to accelerate progress in maternal and child health globally. We call on researchers to undertake robust studies and contribute to joint international efforts such as the international Perinatal Outcomes in the Pandemic (iPOP) study.<sup>5</sup> Together we can learn from recent experiences and start identifying mechanisms that may contribute to a healthier start for future generations.

**Figure: Forest plot of pooled ORs for the association between start of the COVID-19 pandemic and the incidence of preterm birth (<37 weeks gestation) within high-income countries.** Results from random-effects inverse variance meta-analysis. ORs derived from Chmielewska et al.<sup>1</sup> and Been et al.<sup>2</sup>

## References

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Figure



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LBO performed data extraction and analysis. MB performed data checks. JVB wrote the first draft of the letter. All authors interpreted the findings, provided input during the writing, and read and approved the final version of the letter.

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